escaped. The fungi peculiar to these galls belong to the genus Macrophoma, and are not referable to the species of Phoma that inhabit the same hosts.

In a second paper[22] NEGER treats the fungi associated with certain wood-boring beetles, *Xyloterus dispar*, *X. lineatus*, and *Hylecoetus dermestoides*, which form ambrosia upon the walls of their tunnels. The fungus related to Hylecoetus is probably a species of Endomyces; the other two are closely similar, but not identical, and are not identifiable. The species of Ceratostomella, which NEGER formerly mistook for ambrosia fungi in this case, are merely weeds in the fungus garden (as are also yeasts and bacteria), which have no part in producing the edible cells. The larvae of these beetles have thus, in their mouths almost, nutr tious food abstracted by the vegetative mycelium from the more distant wood cells, instead of the relatively poor food, the wood itself; moreover, the borings are confined to the sap-wood, where the fungi find appropriate conditions for growth.—C. R. B.

Ovule and ovulate flower of Juglans.—BENSON and WELSFORD[23] have investigated the ovule and ovulate flower of Juglans in reference to the discordant results obtained by VAN TIEGHEM (1869) and NICOLOFF (1905). The "allied genera" examined for comparative study were Myrica, Carpinus, Morus, Urtica, and Rheum. In brief, it may be said that the account of VAN TIEGHEM was confirmed in all particulars. Interesting phases of "reduction" exhibited by the flowers of *Juglans regia* are as follows: (1) the origin of a dimerous condition from a trimerous, (2) barren placentae with a vascular supply, (3) one mode of the phylogenetic origin of the orthotropous basal ovule from an anatropous parietal type.

More extended conclusions deal with the so-called epigyny of the group considered, and with the ovule in angiosperms. The investigators find in the group "no trace of that form of epigyny which is brought about by the concavity of the axis and sinking and inclusion of the ovary within it," which description hardly applies to epigyny anywhere. It is concluded that the described epigyny of Amentiferae need not be regarded as an advanced character, and that the term had better be avoided. The conclusions as to the ovule of angiosperms are: (1) it is appendicular, (2) it is phylogenetically provided with a dual integument, and (3) the vascular supply may be compared with that of the outer integument or "cupule" of Lagenostoma.—J. M. C.

Aridity and evolution.—Of the external factors which have influenced or caused the evolution of the plant kingdom, MACDOUGAL[24] places much stress

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[22] NEGER, F. W., Ambrosiapilze II. Ber. Deutsch. Bot. Gesells. **27**:372–389. *pl. 17. figs. 2.* 1909.

[23] BENSON, M., AND WELSFORD, E. J., The morphology of the ovule and female flower of *Juglans regia* and of a few allied genera. Annals of Botany **23**:623–633. *figs. 8.* 1909.

[24] MACDOUGAL, D. T., Influence of aridity upon the evolutionary development of plants. Plant World **12**:217–231. 1909.